

## Geometry: Unit 3 Review Answer Key

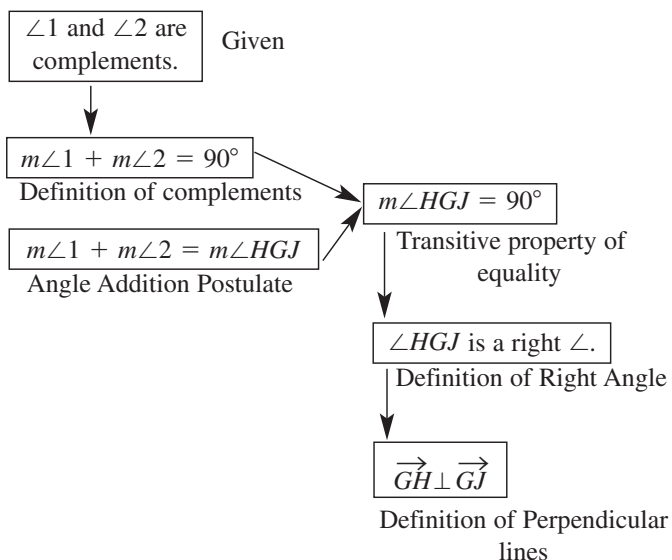
1. alternate exterior    2. alternate interior

3. *Sample answer:*  $\overleftrightarrow{CG}$     4. *Sample answer:*  $\overleftrightarrow{AC}$

5. *Sample answer:*  $\overleftrightarrow{AB}$

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6.



7.  $m\angle 2 = 105^\circ$ ;  $m\angle 3 = 105^\circ$ ,  $m\angle 4 = 75^\circ$ ,  $m\angle 5 = 75^\circ$   
 $m\angle 6 = 105^\circ$

8.  $(7x - 8) + 62 = 180$  Consecutive interior angles are supplementary.

$$7x + 54 = 180$$

$$7x = 126$$

$$x = 18$$

9.  $(4x + 4) = 92$  Alternate interior angles are congruent.

$$4x = 88$$

$$x = 22$$

10. By the Vertical Angles Theorem, the angle vertical to the angle labeled  $(44 - 3x)^\circ$  also has measure  $(44 - 3x)^\circ$ .

$(44 - 3x) + 25 = 180$  Consecutive interior angles are supplementary.

$$-3x + 69 = 180$$

$$-3x = 111$$

$$x = -37$$

11. Statements	Reasons
1. $m\angle 4 = 60^\circ$ ; $m\angle 7 = 120^\circ$	1. Given
2. $m\angle 4 + m\angle 7 = 180^\circ$	2. Addition property of equality
3. $\angle 4$ and $\angle 7$ are supplementary.	3. Definition of supplementary angles
4. $l \parallel m$	4. Consecutive interior angles converse

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12. Statements	Reasons
1. $\angle 1$ and $\angle 7$ are supplementary.	1. Given
2. $m\angle 1 + m\angle 7 = 180^\circ$	2. Definition of supplementary angles
3. $\angle 1 \cong \angle 4$	3. Vertical angles theorem
4. $m\angle 1 = m\angle 4$	4. Definition of angle congruence
5. $m\angle 4 + m\angle 7 = 180^\circ$	5. Substitution property of equality
6. $\angle 4$ and $\angle 7$ are supplementary.	6. Definition of supplementary angles
7. $l \parallel m$	7. Consecutive interior angles converse

13.  $j \parallel k$ ; Corresponding Angles Converse

14.  $m \parallel n$ ; Alternate Interior Angles Converse

15.  $m \parallel n$ ; Consecutive Interior Angles Converse

16.  $j \parallel k, k \parallel l, j \parallel l$ ; Corresponding Angles Converse, Alternate Exterior Angles Converse, Theorem 3.11

17. Slope of  $\overleftrightarrow{AB} = \frac{2 - 0}{2 - (-2)} = \frac{2}{4} = \frac{1}{2}$  parallel

$$\text{Slope of } \overleftrightarrow{CD} = \frac{(1) - (-1)}{1 - (-1)} = \frac{1}{2}$$

18. Slope of  $\overleftrightarrow{EF} = \frac{-1 - 3}{2 - (-2)} = -\frac{4}{4} = -1$  parallel

$$\text{Slope of } \overleftrightarrow{GH} = \frac{2 - (-3)}{-3 - 2} = -\frac{5}{5} = -1$$

19. Slope of  $\overleftrightarrow{JK} = \frac{1 - (-2)}{-2 - (-3)} = \frac{3}{1} = 3$  not parallel

$$\text{Slope of } \overleftrightarrow{MN} = \frac{3 - (-2)}{4 - 2} = \frac{5}{2}$$

20.  $-4 = -2(-1) + b$  21. yes 22. no 23. yes

$$-4 = 2 + b$$

$$-6 = b$$

$$y = -2x - 6$$

24.  $6 = \frac{1}{3}(-3) + b$

$$6 = -1 + b$$

$$7 = b$$

$$y = \frac{1}{3}x + 7$$